various organs, but no local recurrence was noted. One of these cases died of miliary tuberculosis three weeks after the operation. The longest duration of life of these six cases was four years, and adopting this period as the extreme limit during which recurrence is to be expected, there are 13 cases which can be set against them, in which no recurrence took place within that time.

The duration of the disease at the time of operation is not considered, but from the accompanying histories of the cases we learn that in the six cases which died of tuberculosis, the duration of the disease before operation was 1 month, 6 months, 18 months, 2 years (2 cases), and in one case not given. Of the other cases there are seven in which the duration was over one year (in two cases, three years), all remaining free from tuberculosis five years after the operation. Therefore long duration does not necessarily contraindicate castration. Only one case died from the operation, an old man, of "exhaustion."

B. FARQUHAR CURTIS.

PATHOLOGICAL DISLOCATIONS—THEIR ETIOLOGY.

A very useful collection of the facts, and discussion of the theories, as to the etiology of the pathological or spontaneous dislocations has been made by Forgue and Maubrac.[1] Volkmann divided these dislocations into those produced by stretching of the ligaments, those produced by destruction of the articular parts of the bones, and those produced by deformity of those parts due to other changes than are caused by suppuration and granulation. This classification is objectionable because it puts together the deformities of the articulations caused by caries sicca, and by disease of the spinal cord; and because it separates the former (really tubercular) lesion, from the other varieties of tuberculosis.

Our authors distinguish between the dislocations occurring when the bones are healthy, and those in which the bones are altered—thus combining Volkmann's two last classes in one. Of the variety in which the lesions are confined to the soft parts constituting the joint, two classes are made—those in which the soft parts have been previously healthy, and only altered by slow mechanical action; and those in which the soft parts have been primarily affected. This distinction seems unnecessary, for dislocation cannot take place while the ligaments are normal, and it is not important to determine whether some slowly acting cause produced at the same time an elongation of the ligaments and the dislocation, or whether the ligaments were first elongated and the dislocation occurred subsequently.

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[1] Des luxations pathologiques—leur pathogenie, Forgue and Maubrac, Demarquay prize essay, Soc. de Chirurgie, Paris, 1885.

In the first of these subdivisions are grouped the dislocations due to over-extension of the ligaments, to the pressure of neighboring tumors, to the unequal growth of two bones coupled together, to vicious position of the bones—as in genu valgum, and to professional or trade habits.

Under the second subdivision come dislocations due to a previous traumatism, voluntary dislocations—a previous laxity of the ligaments being assumed, dislocations due to paralysis, and those which occur in any inflammation of the joints in which the bone is not involved. These forms present many problems as yet unsolved. Not the least difficult of these problems is the dislocation which has been observed to take place some weeks after a contusion or sprain of a joint, no displacement having occurred at the time of the accident, and no joint disease having developed.

It is not clear why the voluntary dislocations should be included here and separated from dislocations caused by such feeble mechanical agencies as professional habits, for it seems more rational to assume a redundancy, or an unusual elasticity of the ligaments in these cases, with an unusual amount of control over the muscles about the joint, enabling the individual to suspend their instinctive defensive contractions, than any pathological change in the ligamentous tissues, as do the authors.

Two cases are known in which a paralysis of all the muscles about a joint—the hip, has caused dislocations. But the most frequent mode of action of paralysis in producing displacement is by the contraction of one group of muscles, aided by the position of the limb, when their antagonists are paralyzed. Thus, if the extensors and outward rotators of the hip are paralyzed, the flexors and adductors will produce a dislocation upon the dorsum. If the latter groups are weak, the dislocation will be pubic, as in the case reported by Bradford. In the shoulder these dislocations are rare, for the scapula and clavicle are not fixed, and the weight of the arm is the only force acting to displace the head of the humerus.

Dislocations in inflammation of the joints, the bones remaining unaffected, have been observed in simple (traumatic) arthritis, in acute rheumatism, in the arthritis of infectious disease—especially typhoid fever, and in tuberculous fungous synovitis. They are explained by the over-action of one group of muscles, aided by position and the weakening of their antagonists—the way having been prepared by distention of the capsule with effusion, and by softening of the ligaments due to the inflammatory changes in their tissue or to maceration. The position of the limb may be the result of the endeavor of the patient to avoid pain—choosing either that angle at which the intra-capsular pressure is least, or that in which the joint can be most firmly held by its muscles and best guarded against sudden movement. The position of the limb determines the direction of the displacement. These facts, fortified by two cases in which dislocation of the knee and hip in acute rheumatism were the direct result of a faulty position, maintained for a long time, emphasize the necessity for regulating the position of the limbs even in the treatment of this common complaint. Another practical point to be noted in these cases is the relief to the pain brought by the occurrence of the dislocation, which indicates that the displacement relieves some sort of pressure, although in one case the dislocation took place when the joint was not distended by fluid, so that actual distention of the capsule is not a necessary factor in producing the accident.

Coming to the second main variety of pathological dislocations, that in which the bones are altered, we find the teachings of Koenig and Volkmann on the pathology of tuberculosis closely followed. All the varieties of dislocation occurring in tubercular joint disease are considered in turn; the simple form, a true dislocation; the form in which the articular ends are destroyed, the capsule remaining; the perforation of the cotyloid cavity by the head of the femur; the form caused by enlargement of the head of the femur; and the "emigration" of the articulation as a whole. The changes of caries sicca are also noticed here.

Chronic rheumatic arthritis (A. Deformans) destroys the ends of the bones, surrounds the articulations with projecting osteophytes, weakens some muscles and contracts others, and is sometimes accompanied by joint effusions. These changes frequently cause subluxations and sometimes complete dislocation. There may even be emigration of an articulation. Dislocations are also found in chronic rheumatism of the hands, and in the rare fibrous rheumatism described by Jaccoud and Besnier.

The dislocations occurring in locomotor ataxy are fully discussed from the standpoint taken by Charcot.[1] The authors reach the following conclusions: In ataxy there occurs a rarefying ostitis, especially of the epiphyses, caused by some trophic spinal influence, which in extreme cases results in destruction of the ends of the bones, and is the primary cause of dislocation. Secondary causes are traumatism, and unequal pressure upon the bones and ligaments caused by muscular inco-ordination—rendered more injurious by the lack of sensibility to pain. They suggest the hypothesis that the bone lesions are due to syphilis, which is looked upon by so many as the cause of the alteration in the spinal cord.

In syphilis without nervous disease severe arthritis is found, and even dislocation; and our authors consider these to be secondary to syphilitic disease of the bones. The work closes with a brief study of dislocations due to simple deformity of the articular ends of the bones, caused by tumors or by the over-use necessary in certain trades.

B. FARQUHAR CURTIS.

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[1] The paper of Czerny, read before the XV. Congress of German Surgeons, and its discussions, show that there is a growing inclination to follow Charcot's views, and to make a special class of the neuropathic joint diseases. This discussion took place after the work of Forgue and Maubrac was published.